

(No Model.)

3 Sheets—Sheet 1.

C. S. HISEY.
WAD FEEDING MECHANISM.

No. 528,099.

Patented Oct. 23, 1894.

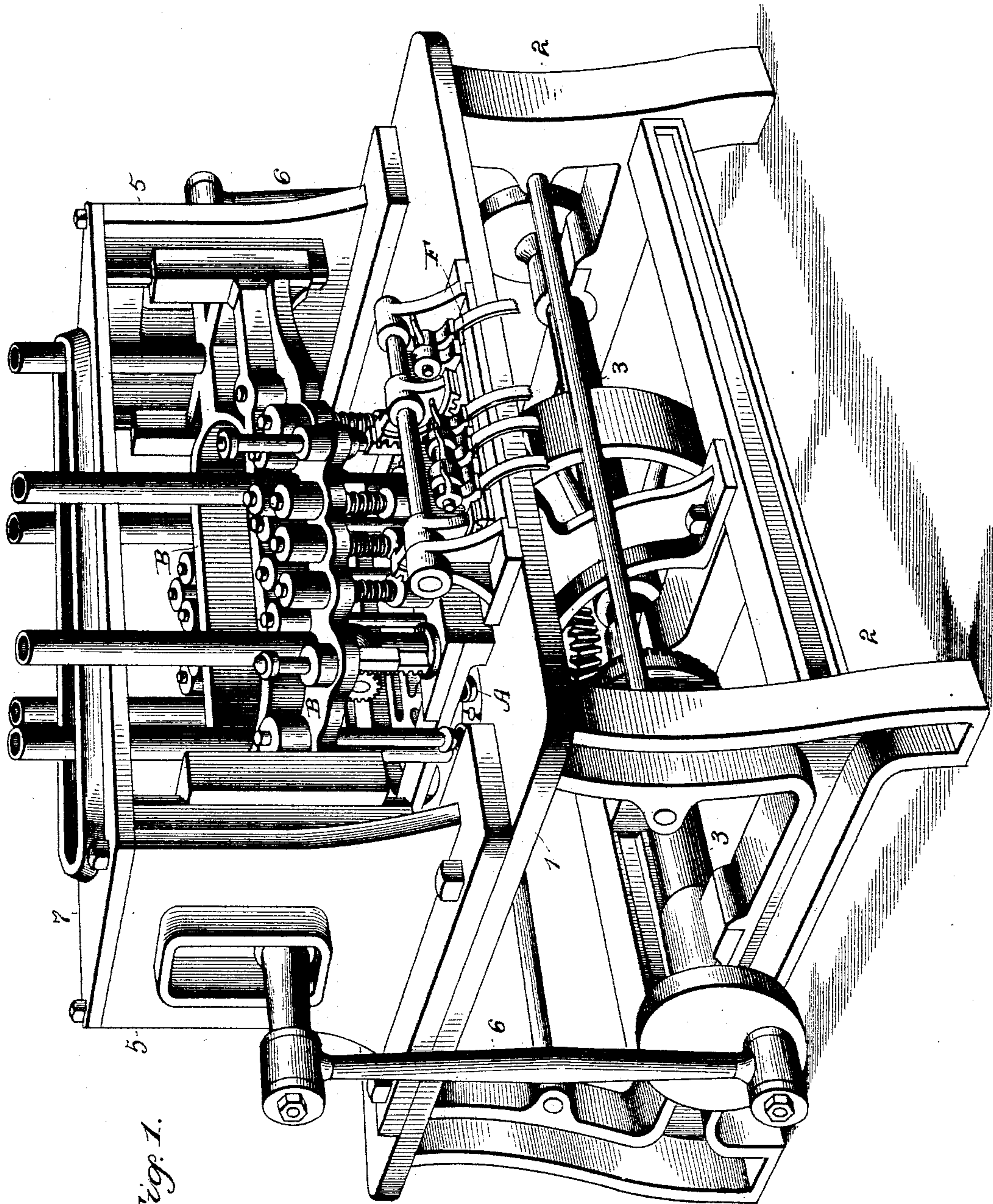


Fig. 1.

Witnesses
Victor J. Evans
M. Agar.

Inventor
Charles S. Hisey.
by E. M. Marble & Co.
Attorneys

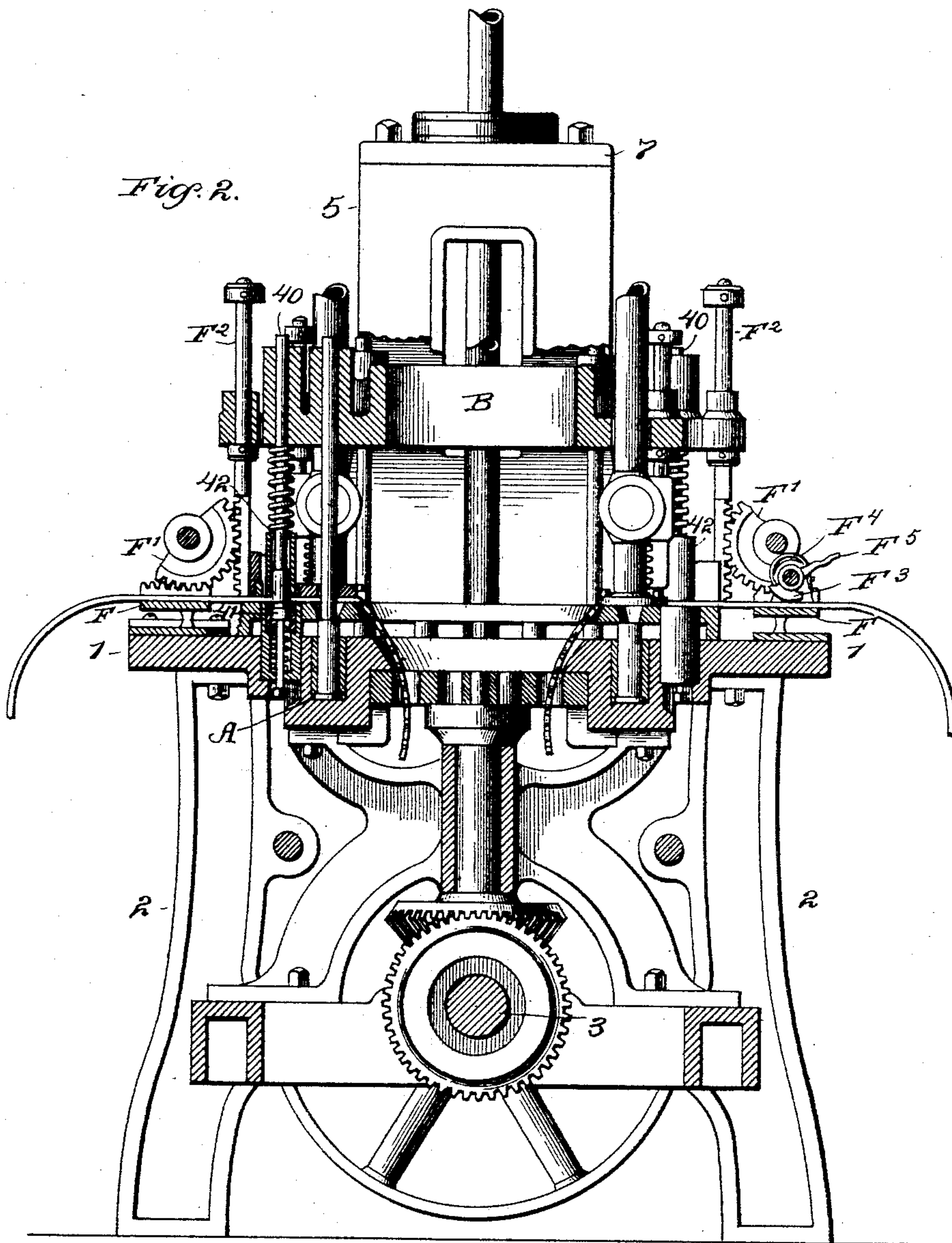
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Witnesses
Victor J. Evans.
M. Apgar.

Inventor
Charles S. Hisey.
by E. M. Marble & Son
Attorneys

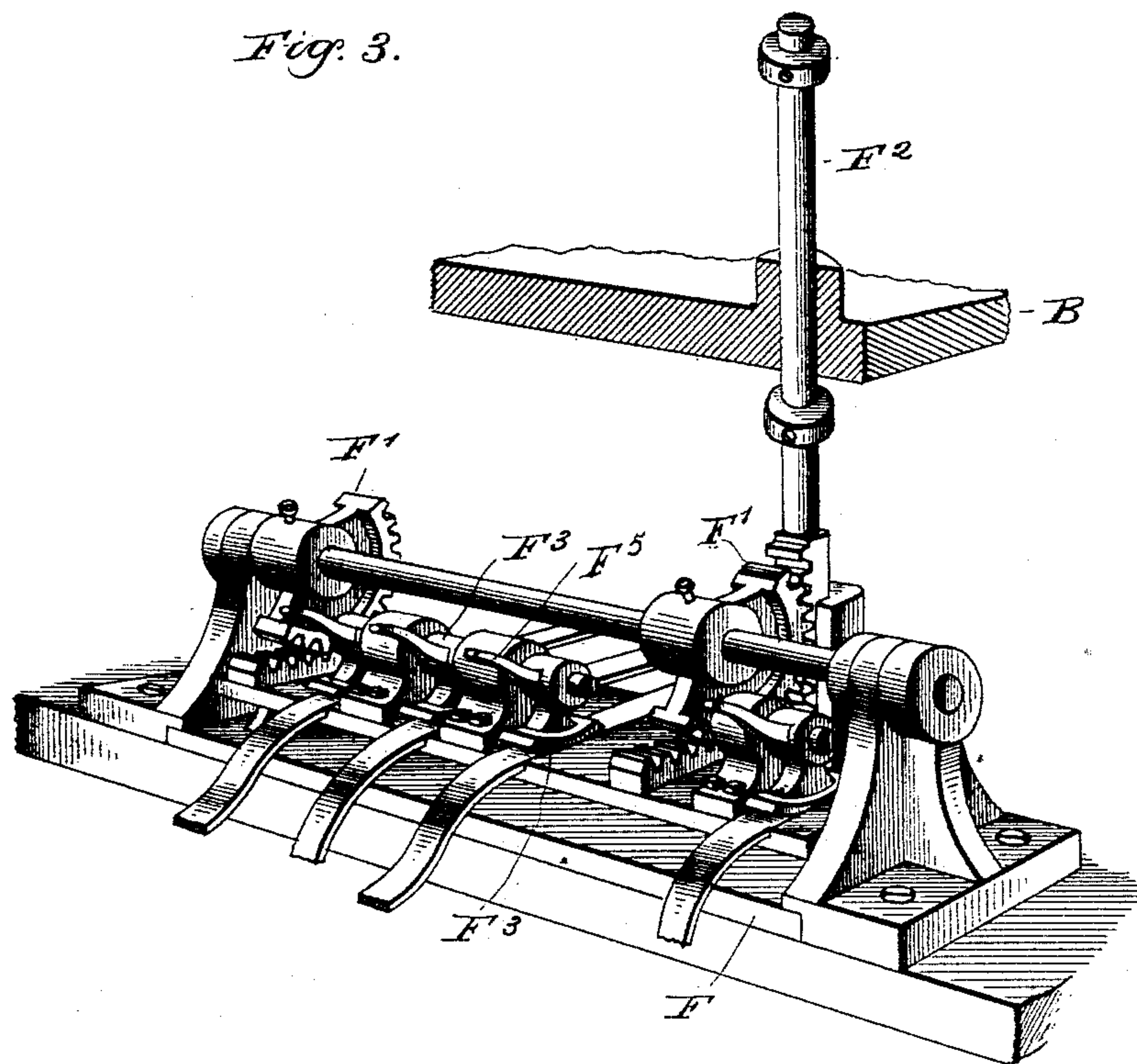
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C. S. HISEY.
WAD FEEDING MECHANISM.

No. 528,099.

Patented Oct. 23, 1894.



Witnesses
Victor J. Evans.
M. Cooper.

Inventor
Charles S. Hisey.
by E. M. Marshall & Son.
Attorneys

UNITED STATES PATENT OFFICE.

CHARLES S. HISEY, OF AURORA, INDIANA, ASSIGNOR TO ELLIOTT S. RICE,
OF CHICAGO, ILLINOIS.

WAD-FEEDING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 528,099, dated October 23, 1894.

Application filed April 13, 1894. Serial No. 507,444. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. HISEY, a citizen of the United States, residing at Aurora, in the county of Dearborn and State of Indiana, have invented certain new and useful Improvements in Wad-Feeding Mechanism; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in cartridge loading machines, and to the particular class of said machines which is constructed and adapted to charge or fill shot gun cartridges, and it consists in an improved wad feeding mechanism which will be hereinafter fully described and particularly pointed out in the claims.

In automatic cartridge loading machines of the endless chain type, such as is illustrated in United States Letters Patent No. 505,423, granted to me on September 19, 1893, and again in that type of cartridge loading machines illustrated in United States Letters Patent No. 480,015, granted to me on August 2, 1892, the wads which are to be placed in the cartridge shells are not cut out before they enter the machine, but strips of wad felt are fed into the machine, and, by means of suitably arranged punches operated by the reciprocating cross head, wads are cut out from these strips and are inserted into the cartridge shells. In such machines it is necessary that the feeding of the wads be very uniform and exact, and this feeding has heretofore been accomplished by means of wad rolls, one set of which had to be provided for each wad strip. While the wad rolls have performed their functions very satisfactorily, there is always present a tendency of the wad strips to slide to one side during their forward movement, and the duplication of the feeding rolls unnecessarily complicates the machine, since each set of feeding rolls have separately to be actuated by the reciprocating cross head.

The object of my present invention is to simplify the wad feeding mechanism, to render unnecessary the duplication of parts heretofore present, to so form the feeding mechanism

that there will be no tendency for the wad strips to slip to one side, and further to so time the movement of the feeding mechanism as to permit it to dwell in both its forward and back position.

I accomplish the objects of my invention by passing the wad strips through grooves cut in the surface of a reciprocating carriage, and by actuating this carriage, through the mediation of suitably journaled segment gear, by rods passing through the reciprocating cross head. Collars are formed on this rod which the reciprocating cross head has to strike to move the rod up or down, and thus the feeding mechanism is allowed to dwell at each end of its movement, while the cross head is passing between the collars formed on the actuating rod. To hold the wad strips in position in the grooves through which they pass, friction clamps are provided which press upon said strips; but the operation of the feeding mechanism is such that these clamps do not interfere with the forward feed of the strips.

My invention is fully described in the drawings accompanying and forming a part of this application, in which the same reference letters and numerals refer to the same or corresponding parts, and in which—

Figure 1 is a perspective view of a cartridge loading machine, showing the wad feeding devices in position. Fig. 2 is a transverse section of the machine, and Fig. 3 is a detail perspective view of the reciprocating carriage through grooves in the surface of which the wad strips pass, and of the actuating mechanism therefor.

Referring to the drawings, 1 represents the machine bed or table. It is rectangular in form, and is supported from the ground by the standards 2. In the upper surface of the table is cut a deep groove, approximately elliptical in form, in which move the shell carrier blocks A, and on both sides of which sets of loading tools may be placed.

3 is the main power shaft of the machine, and is journaled centrally between the standards of the machine in cross pieces running between the same.

To the top of the machine table are bolted

the upright castings 5, which form bearings for the double cross head B, through which pass the rods operating the powder and shot feeding devices. The ends of the cross head project through slots formed in the casting 5, and connection is made between said cross head and the central power shaft by the connecting rods 6, which are attached at their lower ends to cranks on the power shaft. The castings are connected together at the top, in order to give them firmness and rigidity, by the tie plate 7.

In this machine, the wad cutting and inserting mechanism is the same as that shown in United States Letters Patent No. 505,423, granted to me on September 19, 1893; that is to say, the cutting of the wads is effected by a mandrel or punch 40 attached to the cross head of the machine, which forces the wad out of the strip against the action of the spring pressed plunger 41, which acts, as soon as the wad cutting punch has risen, to replace the cut out wad in the wad strip, so that it may be fed forward, by the intermittent movements of the feeding mechanism, through an aperture cut in the supplemental table, over the shell, and may then be placed in a shell by a wad punch. The feeding, as before, is intermittent, and takes place in a plane at right angles to the movement of the shell carrier at the point where the wads are inserted; and, as before, the various punches acting on each wad strip are arranged in a right line. Surrounding the wad cutter 40 is a spring pressed collar 42, as before, but the collar in this case normally projects below the wad cutter, striking the wad strip before the cutter does.

The novelty of the wad feeding mechanism consists in the feeding mechanism itself, independent of the cutters and plungers which act upon the wad strips.

In this machine, the wad strips are all fed through grooves cut in the top surface of the reciprocating carriage F. This carriage extends lengthwise of the machine for a distance sufficient to receive and guide all of the wad strips, and is caused to reciprocate crosswise of the machine by means of the suitably journaled segment gear F', which meshes with teeth formed on the top of the wad feeding carriage, and which is actuated by the toothed rods F². These rods pass through the cross head, and, as in the case of the rods operating the powder and shot chargers, are provided with collars, against which the cross head strikes to impart movement to the carriage F. By this construction, a considerable dwell in the movement of the wad strips is permitted, and the forward movement of the same, which takes place during the upward movement of the cross head B, may be made to take place with as short a movement of said cross head as is desirable.

Two segment gears are provided with each carriage, one operating at each end of the same, although only one of the gears is directly

actuated from the cross head. It is preferable to use two gears in order that perfect uniformity of movement may be secured.

The wad strips are held in grooves formed in the reciprocating carriage F by means of suitably journaled friction clamps F³, one of which is provided for each wad strip, and which, in the construction shown, are pressed downward against the wad strips by suitably formed springs F⁴ (omitted in Fig. 3 in order to show other parts), though this downward pressure may be accomplished by other means if desired. Handles F⁵ are provided for each clamp by means of which it can be moved upward from the strip against which it presses.

The operation of the wad feeding device is as follows:—When the strips are to be inserted, the clamps are raised, and the strips are inserted in their proper places. The operation of the machine is then commenced. In this machine, during the downward movement of the cross head the reciprocating carriage is caused to move back to get a fresh hold on the wad strips, and during the upward movement of the cross head, the wad strips are fed forward. When the cross head moves down, the spring pressed collar 42, which surrounds the wad cutting punch 40 and normally projects below the end of the same, first strikes the wad strip, and firmly holds the same. As the downward movement of the cross head continues, the toothed rod F² is caused to move downward, and thus the reciprocating carriage F is caused to move backward; but as when this backward movement takes place the wad strips are firmly held by the collars 42, the said carriage cannot carry the wad strips back with it, but the hold of the clamps upon the wad strips F³ is broken. The wad strips therefore remain stationary during the backward movement of the reciprocating carriage, and the reciprocating carriage is permitted to take a fresh hold upon the strips. When the reciprocating cross head moves up, after the moment of dwell, the reciprocating carriage is moved forward, and thus the wad strips are fed into the machine.

In order that the operation may take place as thus described, it is necessary that the collar 42 strike the wad strip before the carriage F is actuated to move backward, and that the pressure thus afforded may be sufficient to overcome the friction of the clamps F³. This pressure need not, however, be very strong, as it does not require much force to break the hold of the clamps, due to their eccentric movement.

The wad feed here provided is very positive, and the simplification of the wad feed over all previous mechanisms for accomplishing this purpose, due to running all the strips through grooves in the same carriage, is very great. An entire uniformity of movement is thus made possible, and all trouble arising from the tendency of the wad strips to run to one side is prevented.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a cartridge loading machine, the combination with wad cutting and punching mechanism, of a reciprocating carriage, on which the wad strips lie, for feeding the said strips, and means for reciprocating the same at each actuation of the wad cutting and punching mechanism, substantially as described.

2. In a cartridge loading machine, the combination with wad cutting and punching mechanism, of actuating mechanism therefor, and a reciprocating carriage, operated at each actuation of such actuating mechanism, for feeding the wad strips, substantially as described.

3. In a cartridge loading machine, the combination with wad cutting and punching mechanism, of a reciprocating cross head, and a reciprocating carriage, operated by the reciprocation of the cross head, for feeding the wad strips, substantially as described.

4. In a cartridge loading machine, the combination with wad cutting and punching mechanism, of a reciprocating carriage for feeding the wad strips, clamps for holding the wad strips in place thereon, and means for reciprocating the carriage at each actuation of the wad cutting and punching mechanism, substantially as described.

5. In a cartridge loading machine, the combination with wad cutting and punching mechanism, of a reciprocating cross head, and a reciprocating carriage, operated intermittently by the reciprocation of the cross head, for feeding the wad strips, substantially as described.

6. In a cartridge loading machine, the combination with the wad cutting and punching mechanism, a reciprocating carriage for feeding the wad strips, grooves cut therein through which the wad strips may pass, means for holding said strips in place, and means for reciprocating the carriage, substantially as described.

7. In a cartridge loading machine, the combination with wad cutting and punching mechanism, of a reciprocating carriage for feeding the wad strips, grooves cut therein through which the wad strips may pass, friction clamps for holding said strips in place, and means for reciprocating the carriage, substantially as described.

8. In a cartridge loading machine, the combination with wad cutting and punching mechanism, of a reciprocating carriage for feeding the wad strips, grooves cut therein through which the wad strips may pass, spring pressed friction clamps for holding said strips in place, and means for reciprocating the carriage, substantially as described.

9. In a cartridge loading machine, the combination with wad cutting and punching devices, of a reciprocating cross head having a toothed rod passing therethrough, a reciprocating carriage for feeding the wad strips, and a suitably journaled segment gear meshing with teeth formed on the carriage and with the toothed rod passing through the cross head, whereby the carriage is reciprocated by the reciprocation of the cross head, substantially as described.

10. In a cartridge loading machine, the combination with wad cutting and punching devices, of a reciprocating cross head having a toothed rod with collars formed thereon passing therethrough, a reciprocating carriage for feeding the wad strips, and a suitably journaled segment gear meshing with teeth formed on the carriage and with the toothed rod passing through the cross head, whereby the carriage is reciprocated by the reciprocating cross head, and a dwell is permitted in both of its operative positions, substantially as described.

11. In a cartridge loading machine, the combination with wad cutting and punching mechanism, of a reciprocating carriage for feeding the wad strips, means for reciprocating the same, and a stripper for holding the wad strips from moving backward with the backward reciprocation of the carriage, substantially as described.

12. In a cartridge loading machine, the combination with wad cutting and punching mechanism, of a reciprocating carriage for feeding the wad strips, means for reciprocating the same at each actuation of the wad cutting and punching mechanism, and a stripper for holding the wad strips from moving backward with the backward reciprocation of the carriage, substantially as described.

13. In a cartridge loading machine, the combination with wad cutting and punching mechanism, of a reciprocating carriage for feeding the wad strips, means for reciprocating said carriage, and means operated by the actuating mechanism of the wad cutting and punching mechanism for holding the wad strips from moving backward with the backward reciprocation of the carriage, substantially as described.

14. In a cartridge loading machine, the combination with wad cutting and punching mechanism, of a reciprocating cross-head, a reciprocating carriage for feeding the wad strips, means for reciprocating the same, and means operated by the reciprocating cross-head for holding the wad strips from moving backward with the backward reciprocation of the carriage, substantially as described.

15. In a cartridge loading machine, the combination with wad cutting and punching mechanism, of a reciprocating cross-head, a reciprocating carriage operated by the reciprocation of said cross-head for feeding the wad strips, and means also operated by the reciprocating cross-head for holding the wad strips from moving backward with the backward movement of the carriage, substantially as described.

16. In a cartridge loading machine, the com-

bination with wad cutting and punching mechanism, of a reciprocating carriage for feeding the wad strips, means for holding the wad strips in place thereon, means for re-
5 ciproating the carriage, and a stripper for holding the wad strips from moving backward with the backward reciprocation of the carriage, substantially as described.

17. In a cartridge loading machine, the com-
10 bination with a wad inserting punch, and a wad cutting punch surrounded by a spring pressed collar normally projecting below the same, both arranged in a right line, of a re-
ciproating cross head having a toothed rod
15 with collars formed thereon passing there-

through, a reciprocating carriage for feeding the wad strips, and a suitably journaled segment gear meshing with teeth formed on the carriage and with the toothed rod passing through the cross head, whereby the carriage 20 is reciprocated by the reciprocating cross head, and a dwell is permitted in both of its operative positions, substantially as described.

In testimony whereof I affix my signature in 25 presence of two witnesses.

CHARLES S. HISEY.

Witnesses:

J. LOWE WHITE,

JOSEPH D. WOOD.