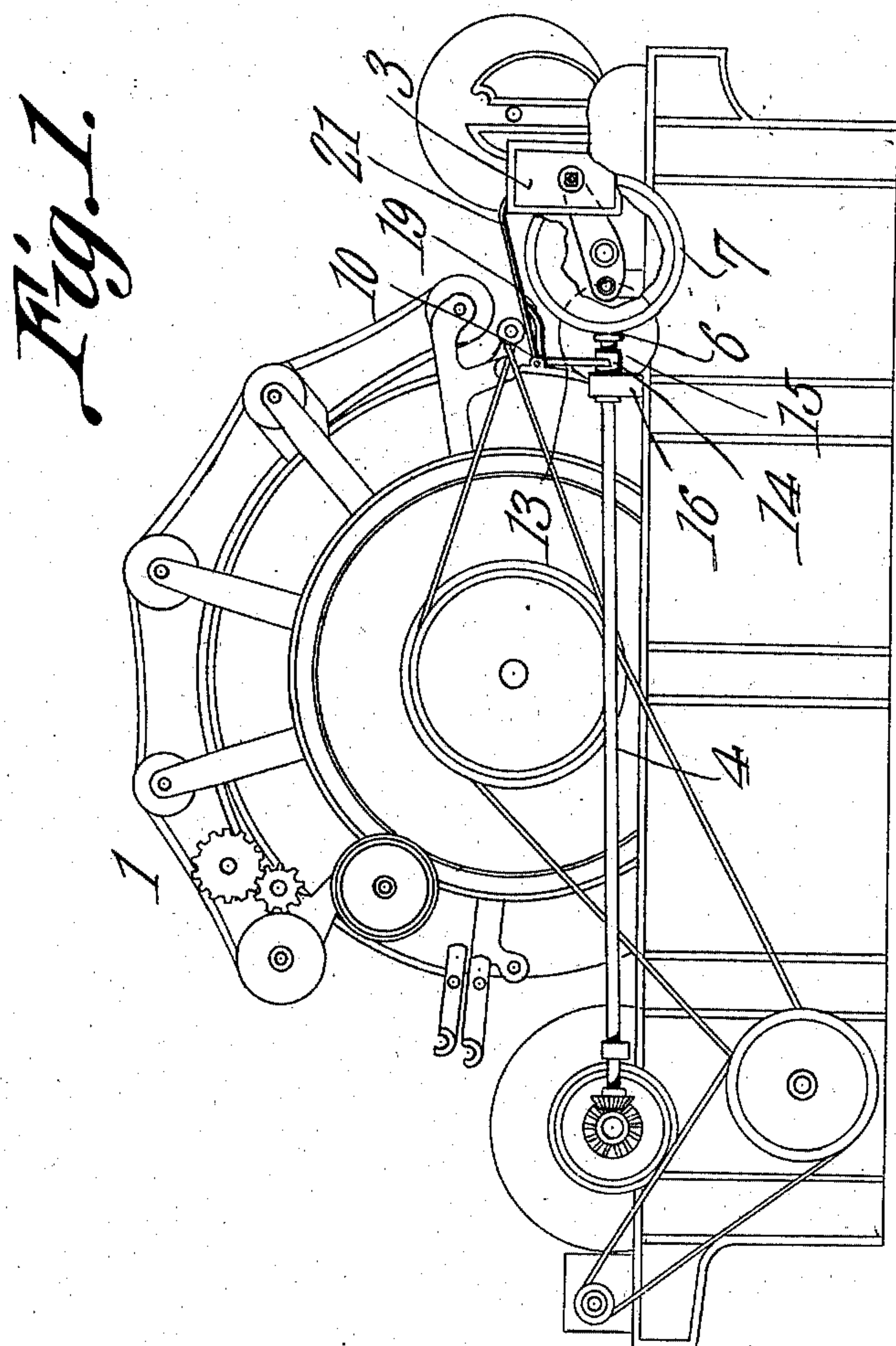


O. J. WHITEHEAD & F. J. CROCKER.
 FEED ROLL STOP MOTION FOR CARDING MACHINES.
 APPLICATION FILED JAN. 24, 1910.

966,971.

Patented Aug. 9, 1910.

2 SHEETS—SHEET 1.



Witnesses
E. J. Stewart
H. J. Chapman

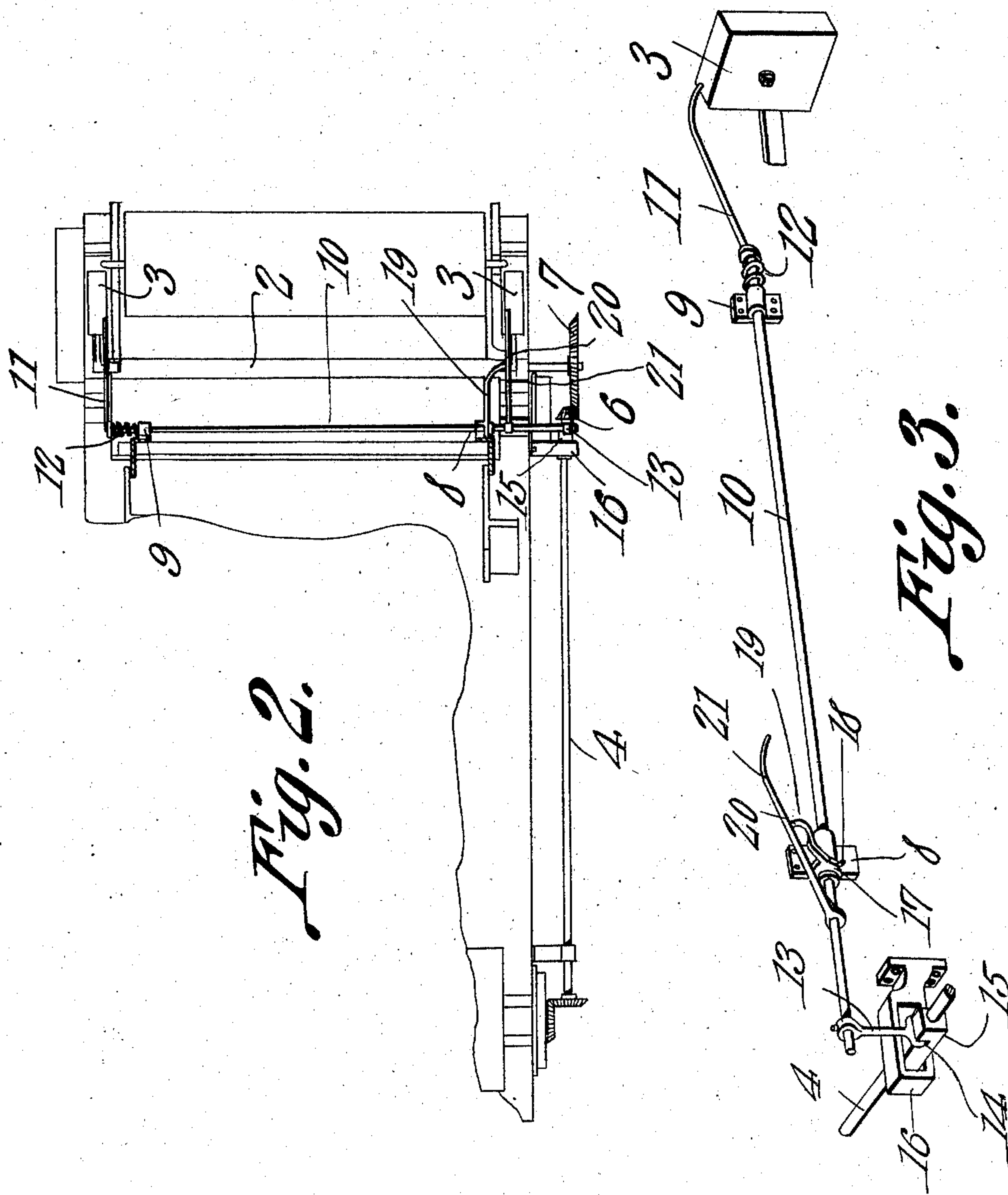
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UNITED STATES PATENT OFFICE.

OBE J. WHITEHEAD AND FRED J. CROCKER, OF COMMERCE, GEORGIA.

FEED-ROLL STOP-MOTION FOR CARDING-MACHINES.

966,971.

Specification of Letters Patent.

Patented Aug. 9, 1910.

Application filed January 24, 1910. Serial No. 539,746.

To all whom it may concern:

Be it known that we, OBE J. WHITEHEAD and FRED J. CROCKER, citizens of the United States, residing at Commerce, in the county of Jackson and State of Georgia, have invented a new and useful Feed-Roll Stop-Motion for Carding-Machines, of which the following is a specification.

This invention has reference to improvements in feed roll stop-motions for carding machines and the object of the invention is to provide a means for preventing any metallic substance from passing with the cotton lap under the feed roller and into the licker-in and from thence to the card cylinder thus protecting the licker-in clothing and the card clothing from any damage which might occur in this manner.

Moreover the invention is designed to prevent a double lap from going into the licker-in, which condition often occurs when laps split and when the tail end of a lap runs into the licker-in, for when these double ends run into the card it almost invariably causes the card to choke and when there is a choke in the card against the mote knives, such knives are misplaced, and unless re-set will cause bad work, such re-setting however being rarely done just at the time of the occurrence of the choke.

In carding machines the feed roller is held in position with relation to the feed apron by means of suitable weights and these weights will rise on the passage between the feed roller and the apron of any hard or thick substance. This movement of the weights is utilized in the present invention for the operation of a mechanism constituting the subject matter of the present invention in such manner as to disconnect the feed roller from the driving gear therefor, the feed thus stopping before the harmful conditions or matters shall reach the licker-in roll.

The invention will be best understood from a consideration of the following detail description taken in connection with the accompanying drawings forming a part of this specification, in which drawings,

Figure 1 is a side elevation of a known form of carding machine with the invention applied thereto. Fig. 2 is a plan view of a portion of the structure shown in Fig. 1, some parts being omitted and others shown in section. Fig. 3 is a perspective view of the mechanism forming the subject matter

of the present invention and so much of parts of the carding machine as are necessary for an understanding of the operation of the structure.

Referring to the drawings there is shown a carding machine 1 of known type, and since the invention has nothing to do with any particular type of carding machine, the showing of the drawing may be taken as illustrative only so far as the general structure of the carding machine is concerned.

The only parts of the carding machine which may be considered are the feed roll 2, the feed roll weights 3, the drive shaft 4 for the feed roll and the pinion 6 and gear 7 connecting the shaft 4 to the shaft of the feed roll, these several parts being common in carding machines.

Secured to the main frame or other fixed portion of the carding machine at the feed roll end are journal brackets 8, 9, best shown in Fig. 3. Mounted in these journal brackets for both rotative and longitudinal movement is a rod or shaft 10 extending from one side of the feed roll end of the carding machine to the other side thereof. At one end of the rod or shaft 10, the end adjacent to the bearing 9, there is secured to the rod a radially extending arm 11 of such length that its free end may be brought into engagement with the upper end of the adjacent weight 3. Between the arm 10 and the bearing 9 the shaft or rod 10 is surrounded by a coil spring 12. Secured to the other end of the shaft or rod 10 beyond the bearing 8 is an arm 13 formed at the free end into a fork 14 embracing a block 15 forming a bearing for the shaft 4 adjacent to the pinion 6 and this block is capable of sliding in a bracket 16 fast to a fixed portion of the frame of the machine. One end of the bearing 8 is turned down true to receive a collar 17 held to the bearing by a set screw 18 and this collar is provided with a radially extending arm 19 having its free end 20 at an angle to the length of the arm. Fast to the rod or shaft 10 adjacent to the bearing 8 on the side thereof carrying the collar 17 is an arm 21 similar to the arm 11, this arm being made of sufficient length so that its free end will engage the upper end of the adjacent weight 3.

The relation of the free end 20 of the arm 19 to the arm 21 is such that the arm 21 may be raised slightly and then moved toward the left, as viewed in Fig. 3, com-

pressing the spring 12, and may then be moved slightly downward until the end 20 of the arm 19 is in the path of the arm 21 when released to the action of the spring 12 thus locking this arm and the rod or shaft 10 from longitudinal movement under the action of the spring 12. When the shaft 10 is in the position just assumed with the arm 21 locked by the end 20 of the arm 19 then the block 14 has participated in this movement to a sufficient extent to bring the pinion 6 into mesh with the gear wheel 7 and assuming that the shaft 4 is turning this movement will be imparted through the pinion 6 to the gear wheel 7 and the feed roll 2 will be actuated and this movement of the feed roll will continue so long as nothing passes under it sufficiently thick to cause a rising of the weight 3 to an extent to lift the arms 11 and 21 sufficiently to cause the escape of the arm 21 from the free end of the arm 19. While this condition prevails the carding machine will continue its normal operation.

Suppose now that a piece of metal or other hard substance should be embedded in the lap and should reach the feed roll 2. This feed roll will be lifted by the hard substance, the weights 3 rising, and this movement of the weights will be communicated to the arms 11 and 21 rocking the rod or shaft 10 in the bearings 8 and 9, the upward movement of the free ends of the arms 11 and 21 being sufficient to carry the arm 21 away from the end 20 of the arm 19 thus releasing the rod or shaft 10 to the action of the spring 12. The longitudinal movement of the rod or shaft 10 under the impulse of the spring 12 will be participated in by the block 15 and the pinion 6 on the end of the shaft 4 will be moved away from the gear wheel 7 thus disconnecting the feed roll from its drive shaft, and the feed roll will thereupon cease to rotate. Since the stop motion applies to the feed roller, the card tender goes to the back of the machine, backs the feed roll and removes the foreign matter and then by grasping the arm 21 may move the rod or shaft longitudinally in a direction opposed to the spring 12 until the pinion 6 is again in mesh with the gear wheel 7 thus starting the feed roll to operation, when by a slight downward movement of the arm 21 it becomes locked behind the end 20 of the arm 19 and the pinion 6 is thereby held in mesh with the gear wheel 7 against the action of the spring 12. The attendant now pushes the cotton sheet under the feed roll and then goes to the front of the carding machine and pieces up the end of the sliver. Should a double lap start in toward the licker-in, which often occurs when laps split and the tail end of a lap runs into the licker-in, the weight 3 will be lifted as before and the stop motion will

become active since the arm 21 is thrown off the end 20 of the arm 19 and the parts are brought to rest as before. By the means forming the subject matter of the present invention the trouble may be always definitely located at the feed roll and the card tender may therefore go at once to the rear end of the machine and remedy the trouble thus effecting a material saving in time.

To prevent wear the end 20 of the arm 19 and that portion of the arm 21 where engaged by the end 20 of the arm 19 may both be suitably hardened.

Since the application of the invention has been shown in connection with a single known type of carding machine, it will be understood that in order to adapt the invention to other types of carding machines it is sometimes necessary to change the proportions and arrangements of the parts to correspond to the other types of machine and therefore the invention is not limited to the structure shown and described, but such structure may be variously modified as may be necessary to adapt the attachment to different forms of carding machines. The arm 19 being adjustably mounted in the bearing 8 permits the ready setting of the end 20 of said arm to release the arm 21 at any desired degree of rise of the weights 3.

The present invention is highly advantageous in obviating the necessity of replacing or repairing the clothing of the card cylinders and licker-ins which would become damaged by the passage of foreign substances under the feed roller. The usual cost of reclothing the card cylinder is about seventy-five dollars and from ten to twelve dollars for the licker-in. For this reason a slight damage will be ignored but the resultant work is then defective. Both the high cost of repairs and defective output are avoided by the preventive action of the present invention in stopping the feed before any substance harmful to the structures beyond the feed roller can reach them.

What is claimed is:—

1. A throw off for the feed rolls of carding machines comprising a rock shaft constrained to move longitudinally in one direction, arms on said shaft adapted to engage the constraining weights of the feed roll, a lock member for the shaft normally holding the latter against its constraining means but releasing the shaft on an abnormal movement of the feed roll, and means for coupling the feed roll to its drive shaft movable to inactive position by the longitudinal movement of the first named shaft under the action of its constraining means.

2. A throw off for the feed rolls of carding machines, comprising a rock shaft, a spring tending to move the shaft longitudinally in one direction, arms on the said shaft adapted to engage the constraining weights

of the feed roll, a normally fixed arm in the path of one of the arms on the shaft for normally holding the latter against the action of its spring but releasing the shaft to the action of its spring on an abnormal movement of the feed roll, means for coupling the feed roll to its drive shaft, and connections from the first named shaft to said coupling means for moving the latter to inactive position by the longitudinal movement of the first named shaft under the action of its spring.

3. A throw off attachment for feed rolls of carding machines comprising a rock shaft, bearings for the same in which it may rock and move longitudinally, a spring on the shaft tending to move the latter longitudinally in one direction, radially disposed

arms on the shaft in position to engage the constraining weights of the feed roll of the carding machine, an arm on the shaft adapted to engage the coupling means for connecting the feed roll to its drive shaft, and a stop arm carried by one of the bearings and adapted to engage one of the arms on the first named shaft to lock the shaft against the action of its spring.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

OBE J. WHITEHEAD.
FRED J. CROCKER.

Witnesses:

J. M. NIX,
H. H. FLEMING.