No. 868,550. PATENTED OCT. 15, 1907.

T. F. HAGERTY.

PLAITING MACHINE.

APPLICATION FILED MAY 22, 1905.

2 SHEETS—SHEET 1.

FIG. 1.

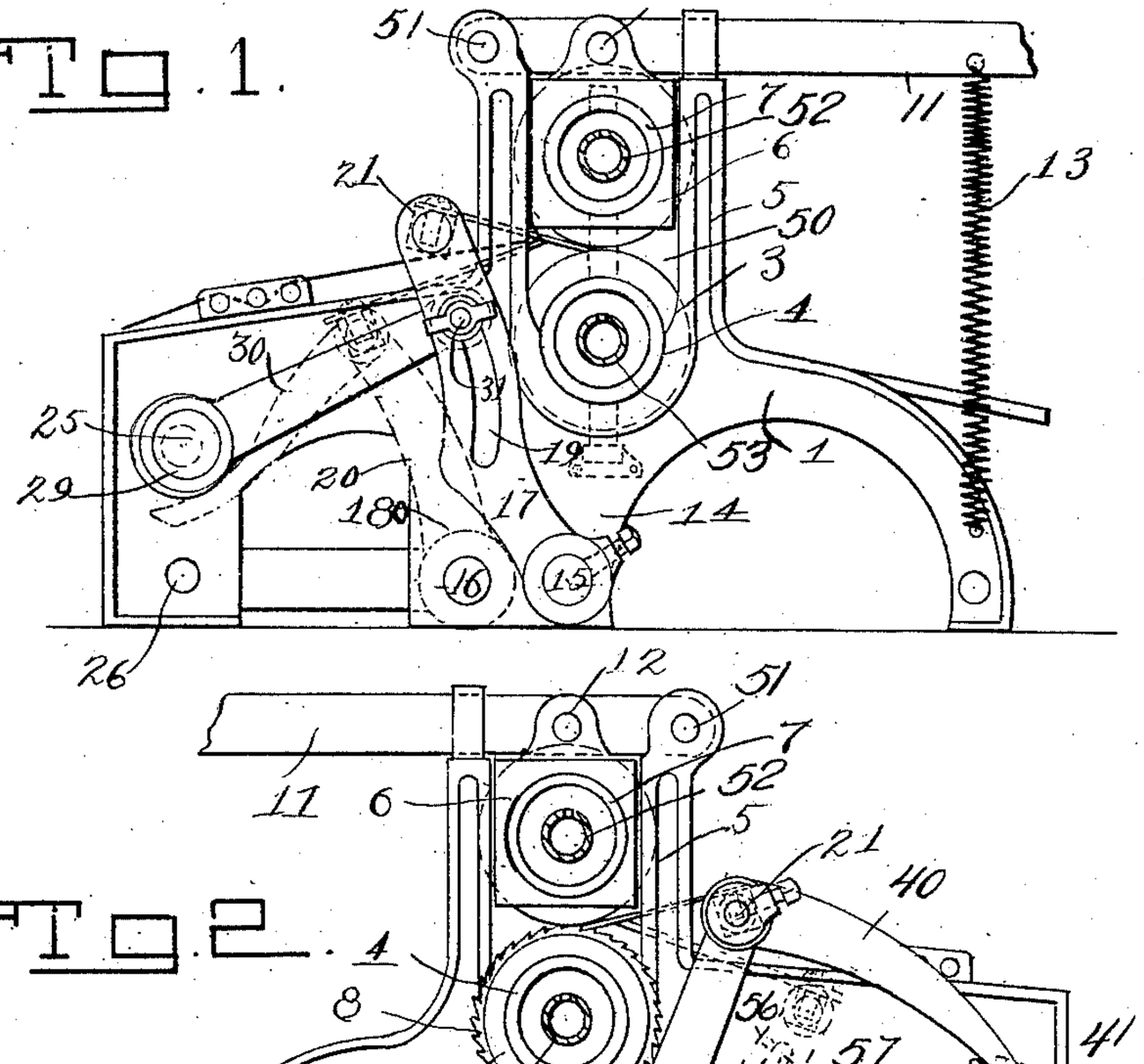
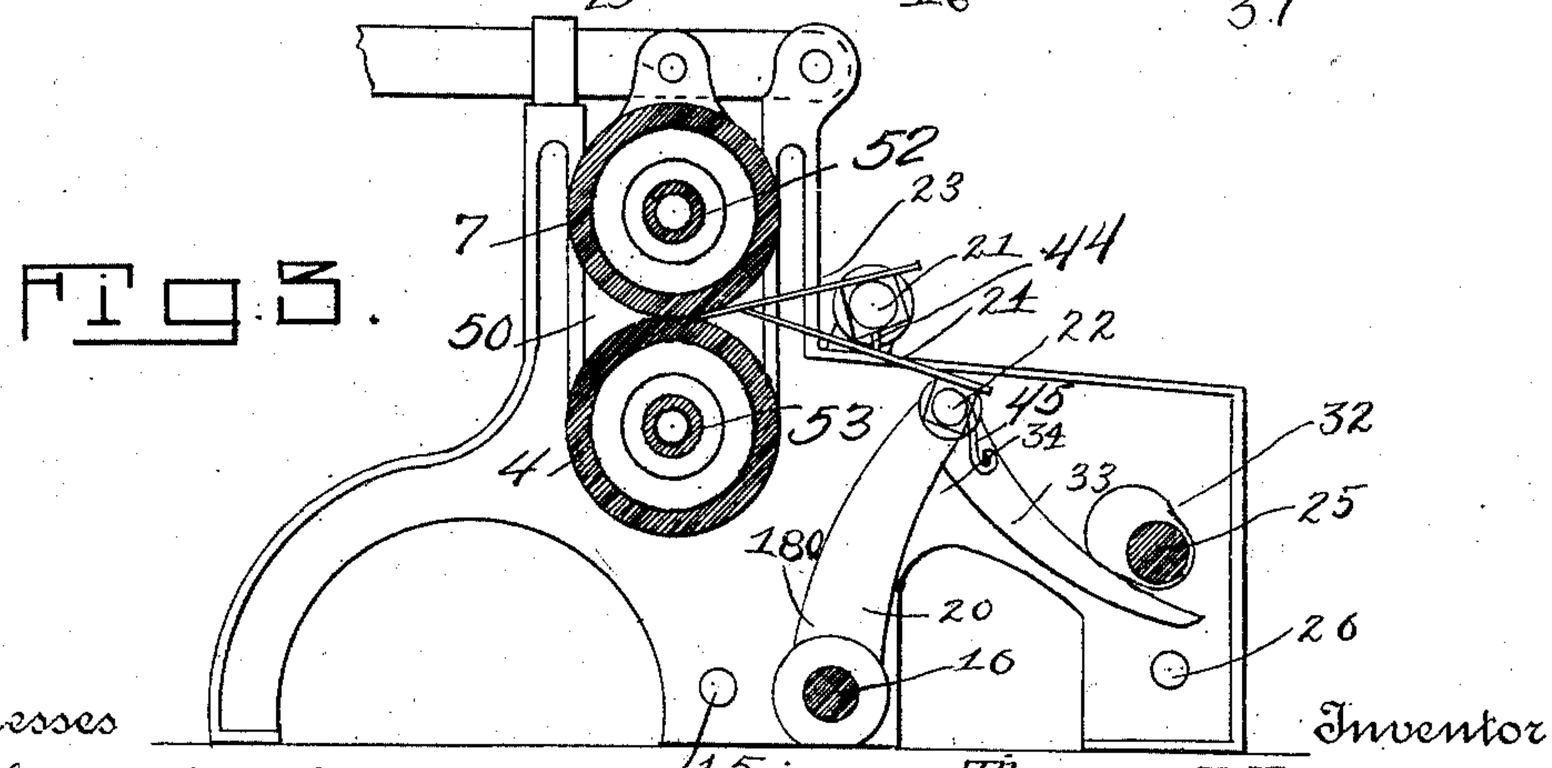


FIG. 2.

FIG. 3.



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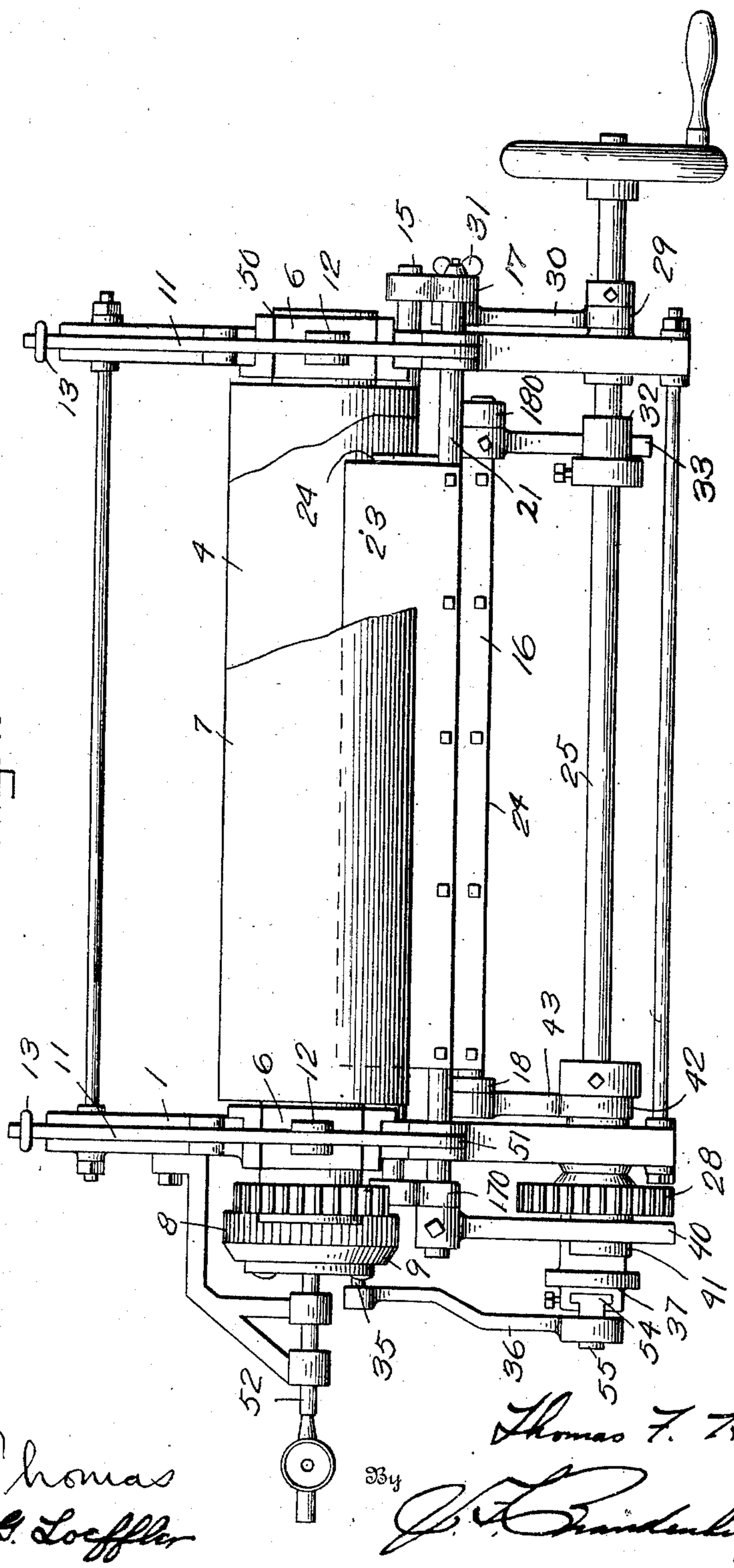
2 SHEETS—SHEET 2.

Fig. 4.



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THOMAS F. HAGERTY, OF NEW YORK, N. Y.

PLAITING-MACHINE.

No. 868,550. Specification of Letters Patent. Patented Oct. 15, 1907.

Application filed May 22, 1905. Serial No. 261,559.

To all whom it may concern:

Be it known that I, THOMAS F. HAGERTY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Plaiting-Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to plaiting machines designed to form box plaits, and the object is to provide a pair of alternately operating knives mounted independently for oscillation with reference to a pair of press-rolls, and improved mechanism for coöperatively actuating said knives.

To this end, the invention may be said to consist in the combinations hereinafter described and more particularly pointed out in the claims.

In the drawings: Figure 1 is a side elevation; Fig. 2 is an elevation of the opposite side of the machine; Fig. 3 is a longitudinal section taken just within the side of the frame shown in Fig. 2; Fig. 4 is a plan view of the machine, part of the upper roll being broken away for greater clearness.

Referring to these drawings, 1 is a suitable frame or box, the central portion of whose sides are vertically slotted from the top, as at 50. These slots are curved at the bottom, forming open journals for the lower press-roll 4; they also constitute guides for the blocks 6 of the upper press-roll 7. A lever 11 is pivoted at 51 to the frame and at 12 to the boxes 6; and a spring 13, connected at one end to the lever and at the other to the frame, serves to keep the rolls in contact, with the proper degree of pressure. The press-rolls are hollow, and receive axial, perforated gas pipes 52 and 53 in the well-known manner.

The driving shaft is shown at 25 journaled transversely of the frame toward the front end thereof. This shaft is provided at one end with a large gear 28, which meshes with a small gear 27 on the underlying press-roll-operating shaft 26. The latter shaft bears a slotted chuck 37, in which slides a block 54, carrying the pin 55 on which is pivoted one end of the link or pitman 36, the opposite end of this member being pivotally connected at 35 with the depending portion of a pawl-yoke 9, which encircles the lower press-roll and carries the spring-pawl 10, which coöperates with the ratchet 8 rigid with such roll. By these arrangements a step-by-step movement of the press-rolls is provided for, and the extent of the movement is controlled by the position of the block 54 in the chuck, these latter devices, as is well understood, constituting an adjustable crank. It will be obvious that the extent of rotation of the rolls at each actuation determines the distance between plaits in the product.

Journaled in the central portion of the frame are two knife-operating shafts 15 and 16. Shaft 15 controls the upper knife 23, and has mounted thereon, without the two sides of the frame, the upstanding arms 17 and 170, which at their upper ends carry the knife shaft 21, on which is mounted the knife. The end of the driving shaft in advance of the arm 17 has thereon the eccentric 29, which operates pitman and strap 30, the latter being adjustably secured at its rear end to the arm 17 by means of the slot 19 and the thumb-nut 31. The slot 19 is cut on an arc described about the center of the eccentric 29 as a center; and it therefore follows that, if the rear end of the pitman 30 be adjusted up or down in the slot while the knife is in position between the rolls, the extent of its retraction, and the consequent depth of plait, will be varied.

The knife shaft 21 carries a depressing lever 40, rigid with the knife and which projects toward the front of the machine and has its under surface operated upon by a pear-shaped cam 41 on the driving shaft 25. This cam operates to elevate the lever and depress the knife; the elevation of the knife may be effected by the overbalancing effect of the greater weight of the lever, when the cam no longer supports the latter, or by the action of a spring 44.

The second knife-operating shaft 16 carries within the two sides of the frame the upstanding arms 18 and 180, which at their upper ends carry the knife shaft 22, on which is mounted the lower knife 24. The arm 18 is provided with a slot 56 constructed with reference to an eccentric 42 on the driving shaft in like manner to the slot 19. A strap and pitman 43 and thumb-nut 57 connect the eccentric and arm in a manner readily understood from the foregoing description.

Extending from the knife 24 toward the front of the machine is elevating lever 33, which coöperates with the pear-shaped cam 32 on the driving shaft. A spring 45 serves to lower the blade when the lever is not depressed by the cam.

Having thus described the construction of my machine, the operation of its respective parts is as follows:— The cloth to be plaited is placed under the upper blade and on the top of the lower blade which at this time is forward and has its edge within close proximity to the rollers. By the forward movement of the driving shaft the upper blade has its forward edge lowered upon the cloth by the action of the cam and while the rollers are at rest the cloth is folded and carried up between the rollers. The cam at this point releases the depressing lever and allows the blade to be raised away from the cloth, but before the blade recedes the rollers are caused to move forward with the folded plait by means of the pawl and ratchet connection operated by the link and chuck. One-half of the box plait is thus formed by the upper blade in a similar manner as is practiced in side plaiting. By a further movement of the driving shaft the upper blade begins to lift and recede but before receding far is met by the lower blade which by this time has been tilted upwardly by the

action of the cam which presses the elevating lever downward instead of lifting as in the case of the half of the plait formed by the upper blade; and the other half of the plait is thus formed against the under side of the upper blade. A still further movement of the driving shaft carries the other half of the plait to be formed up between the rollers where it gets pinched and drawn in, as heretofore described in the case of the upper blade and its action on the cloth.

What I claim as new and desire to secure by Letters Patent is:—

1. In a plaiting machine, the combination of a driving shaft, a pair of press-rolls, connection between the driving shaft and rolls for effecting intermittent movement of the latter, a pair of parallel shafts, a pair of upstanding arms carried by each shaft, a knife carried by each pair of arms one above the other and in coöperative relation with the press-rolls, independent reciprocating adjustable connections between the driving shaft and the knives arranged to effect alternating oscillation thereof toward and away from the bite of the rolls, cams on the driving shaft, and extensions on the knives coöperating with said cams, whereby the upper knife is depressed during advancement and elevated during retraction and the reverse operation is effected with respect to the lower knife.

2. In a plaiting machine, the combination with a pair of press-rolls, of a single driving shaft, a pair of parallel shafts, a pair of upstanding oscillating arms carried by each of said parallel shafts, a shaft carried by the upper ends of each pair of arms, a knife mounted on each shaft for oscillation about the axis thereof, one knife being disposed above the other and the two being in coöperative relation to the press-rolls, independent reciprocating connections between the driving shaft and the knives secured to the supporting arms thereof, levers rigid with the knives and extending adjacent the driving shaft, and cams mounted on the driving shaft in coöperative relation to said levers.

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

THOMAS F. HAGERTY.

Witnesses:
FRANK E. HALL,
J. MAE WRIGHT.